Amendments to the Specification:

Please replace the paragraph at page 11, lines 22-27 with the following amended paragraph:

The controller is configured to analyze the image data recorded with the camera, and to control the actuator for displacing the filter from the first position to the second position based on such analysis. The ~~the~~ analysis may comprise a determination of light intensities at particular portions of the images recorded with the camera.

Please replace the paragraph at page 16, lines 10-19 with the following amended paragraph:

A partially transmissive mirror 21 is disposed in the partial beam 15 for branching off a portion of the light thereof as a beam 23. Beam 23 is split ~~splitted~~ with a further beam splitter 25 to form beams 27 and 29. Beam 27 is supplied to a light sensitive element of a camera 32 through a camera adapter optics 31 such that the camera 32 detects an image of the object 9 under an observation angle $-\alpha$ with respect to optical axis 7. The images detected with camera 32 are transmitted as image data through a data line 33 to a controller 35.

Please replace the paragraph at page 22, line 17 to page 23, line 2 with the following amended paragraph:

An embodiment of a method of operating the microscopy system 1 will be illustrated below with reference to the flowchart of figure 3. At a start of an imaging procedure the thermal protective filter 85 is disposed in the beam path of the illumination system 63, and the controller waits in [[a]] step S1 for a start button of a switch 97 or some other input means being operated by the

surgeon or his assistant. Preferably, the start button 97 will be operated shortly before or after the injection of the fluorescent substance into the patient. In **[[a]]** step S3 the actuator removes the thermal protective filter 85 from the beam path and inserts fluorescent imaging filter 84 in the beam path, and in **[[a]]** step S5 a counter n is reset. Thereafter, an image B(0) detected by camera 55 is stored as image data in memory 95 (step S7). This image is also transferred by controller 35 to display 69. Display 69 displays the image such that the surgeon may perceive the image in superposition with the visible light image of the object 9 when looking into the ocular (S9). Thereafter counter n is incremented (S11), a next image B(n) is received from camera 55 and stored in memory 95 (S13), and this image B(n) is visualized by display 69 or 51 in **[[a]]** step S15.

Please replace the paragraph at page 23, lines 4-21 with the following amended paragraph:

Since the vessel system under observation does not contain fluorescent substance at the start of the procedure, the first detected images B(n) show substantially no intensities of infrared light. The fluorescent substance propagates through the body of the patient and finally enters the tissue region 9 in the object field of the microscopy objective 3 such that the images B(n) show successively increasing infrared intensities. The controller 35 analyses the intensities of the images B(n) and compares the intensities in **[[a]]** step S17 with a first predetermined threshold. If the intensity of the latest detected image B(n) is less than the first threshold, processing is continued with step S11. If the intensity of image B(n) is higher than the first threshold this is indicative of a point in time used as a start of a series of detected images which series will be

repeatedly displayed to the user later. The current value of counter n is assigned to a variable nstart in **[[a]]** step S19.

Please replace the paragraph at page 23, line 23 to page 24, line 7 with the following amended paragraph:

Thereafter the counter is incremented (S20), the next image B(n) is obtained and stored (S21) and displayed (S23). The controller 35 compares in **[[a]]** step S25 the intensity of the last detected image B(n) with the intensity of the second last image B(n-1) and continues processing at step S20, if the difference between both intensities is higher than a predetermined second threshold value. The second threshold value is chosen such that the condition of step ~~S24~~ S25 will not be fulfilled shortly after the start of the substance entering the vessel system since the intensities will continuously increase at that time. At some later time the concentration of the fluorescent substance will come close to a saturation, and differences between intensities of subsequent images B(n) and B(n-1) will become smaller than the second threshold value. This is indicative of a point in time at which the series of detected images should be terminated. The current value of the counter n is assigned to a variable nend ~~nende~~ in **[[a]]** step S27, and the fluorescent imaging filter 83 is removed from the beam 74 and the thermal protective filter 85 is inserted in beam 74 in **[[a]]** step S29.

Please replace the paragraph at page 24, lines 9-21 with the following amended paragraph:

Thereafter the processing is continued by repeatedly displaying the detected images with

displays 69 or 51. For this purpose the counter n is set to the value nstart corresponding to the start of the series of images (S31), in which B(n) is displayed (S33), and the counter n is incremented (S35). If a present value of counter n is below the value nend thereof at the end of the series of images in a step S37, processing is continued at step S33. Otherwise it is decided in **[[a]]** step S39 whether button 97 was again operated for indicating an end of the procedure (S39). If the end of the procedure is not indicated, processing is continued at step S31 for displaying the series of images again.

Please replace the paragraph at page 25, lines 22-29 with the following amended paragraph:

Figure 4 schematically illustrates a beam path of a further embodiment of a microscopy system 401 **[[1]]**. The microscopy system comprises an objective lens 403 **[[3]]** having plural lenses 405 **[[5]]** and 406 **[[6]]**. Lenses 405 **[[5]]** and 406 **[[6]]** are covered with antireflective coatings such that reflections of visible light at the surfaces of the lenses are reduced. The antireflective coating may be designed such that also reflections of infrared light and near infrared light at the lens surfaces are reduced.

Please replace the paragraph at page 25, line 31 to page 26, line 11 with the following amended paragraph:

Objective lens 403 **[[3]]** receives a divergent beam 409 **[[9]]** emanating from an object plane 411 **[[11]]** of the objective lens 403 **[[3]]**. The diverging beam 409 **[[9]]** is transformed by the objective lens to provide a substantially parallel beam downstream of the objective lens.

Downstream of the objective lens 403 [[3]] and above the objective lens in the representation of figure 4 there are provided two zoom systems 413 [[13]] and 414 [[14]] which are schematically indicated in figure 4. Each zoom system [[13, 14,]] 413, 414 uses a partial beam [[15, 16]] 415, 416, respectively and supplies the same to oculars [[17, 18,]] 417, 418, respectively of the microscopy system. A user may perceive a magnified sharp image of object plane [[11]] 411 by looking into the oculars [[17 and 18]] 417 and 418 with his right and left eyes, respectively. Visible light is used for generating these images of the object plane [[11]] 411. For this purpose, the object plane [[11]] 411 is illuminated with visible light supplied by an illumination system [[21]] 421 comprising a xenon lamp [[23]] 423 and beam shaping lenses [[24 and 26]] 425 and 426.

Please replace the paragraph at page 26, lines 13- 27 with the following amended paragraph:

The microscopy system [[1]] 401 further comprises a camera [[35]] 433 for detecting a substantially sharp image of the object plane with visible light. The camera [[33]] 433 comprises a CCD camera chip [[35]] 435 having a light sensitive substrate positioned in an image plane [[37]] 437. A beam splitter [[29]] 429 is provided in the partial beam [[16]] 416 for branching off a beam [[31]] 431 therefrom and for supplying beam [[31]] 431 to a camera adapter optics [[39]] 439 supplying the beam [[31]] 431 to the camera such that the substantially sharp image of the object plane [[11]] 411 is generated at the image plane [[37]] 437. The images detected by camera [[33]] 433 may be used for documentation or they may be displayed by [[an]] a display apparatus for displaying the image of the object plane [[11]] 411 for users who may not directly

use the oculars [[17, 18]] 417, 418. The images of camera [[33]] 433 may be in particular supplied to a head mounted display of a user.

Please replace the paragraph at page 26, line 29 to page 27, line 8 with the following amended paragraph:

The microscopy system [[1]] 401 comprises a camera [[41]] 441 for detecting images of the object plane with infrared light. Camera [[41]] 441 comprises a CCD camera chip [[43]] 443 having a light sensitive substrate positioned in an image plane [[45]] 445. A camera adapter optics [[47]] 447 is provided for supplying a beam [[51]] 451 branched off from the partial beam [[51]] 451 by a beam splitter [[49]] 449 to the CCD camera chip [[43]] 443. The camera adapter optics [[47]] 447 is configured such that a substantially sharp image of the object plane [[11]] 411 is generated in image plane [[45]] 445 with infrared light. Thus, the cameras [[33 and 41]] 433 and 441 differ from each other in that camera [[33]] 433 generates a substantially sharp image of the object plane [[11]] 411 with visible light, and camera [[41]] 441 generates a substantially sharp image of the object plane with infrared light. According to one conventional definition the infrared light may comprise wavelengths in a range of 820 nm to 870 nm.

Please replace the paragraph at page 27, lines 10-17 with the following amended paragraph:

A filter [[453]] 453 is disposed in beam [[51]] 451 in front of camera [[41]] 441. Filter [[53]] 453 is adapted to the fluorescent substance which is used in the application. In the present example the filter [[53]] 453 is adapted to the fluorescence of indocyanine green such that it transmits

substantially only light of a wavelength range between 820 nm and 870 nm. The fluorescent wavelengths of indocyanine green are within this wavelength range.

Please replace the paragraph at page 27, lines 19- 21 with the following amended paragraph:

According to an alternative embodiment the beam splitter **[[49]]** 449 may be covered with a suitable coating such that the beam splitter **[[49]]** 449 deflects only infrared light.

Please replace the paragraph at page 27, lines 23 and 24 with the following amended paragraph:

Images detected by camera **[[41]]** 441 are supplied to a controller or computer **[[55]]** 455.

Please replace the paragraph at page 27, line 26 to page 28, line 2 with the following amended paragraph:

In an application according to one embodiment a tissue to be inspected, such as a human liver is positioned in the object plane **[[11]]** 411. Blood vessels extending through the tissue are substantially not visible if the tissue is observed by just using the visible light images provided by oculars **[[17 and 18]]** 417 and 418. It is not easy to discriminate between blood vessel and surrounding lever tissue from such images. After an intravenous injection of ICG the fluorescent substance will accumulate in the vessels at a higher concentration than in surrounding tissue. An image of the tissue using light in the wavelength range of 820 nm to 870 nm will show higher intensities at locations corresponding to fluorescent vessels as compared to surrounding tissue.

Please replace the paragraph at page 28, lines 4-15 with the following amended paragraph:

An example of an image detected by camera [[41]] 441 and supplied to controller [[55]] 455 is schematically illustrated in figure 5a. A major portion 57 of an imaging field 58 shows a very low intensity. A portion 59 shows a slightly higher intensity, and two portions 61, 62 show even higher intensities. Within portion 61 there is located a portion 63 showing an even higher intensity of infrared radiation. It is assumed that the portions 62 and 63 are associated with blood vessels, whereas the portion 57 is associated with surrounding tissue. It is further assumed that the portion 59 is associated with surrounding tissue in which some low concentration of fluorescent substance has accumulated.

Please replace the paragraph at page 28, lines 17-31 with the following amended paragraph:

The microscopy system 401 [[1]] further comprises a display system [[65]] 465 comprising an LCD chip [[69]] 469 positioned in a plane [[67]] 467. An image displayed with LCD chip [[69]] 469 is superimposed with partial beam [[15]] 415 by a projection optics [[71]] 471 and a beam splitter [[73]] 473. When looking into the ocular [[17]] 417 the user may perceive a superposition of the visible light image of the object plane and an image representation generated by display [[69]] 469. The controller [[55]] 455 may supply an image to display [[69]] 469 as it is schematically illustrated in figure 5a. The image is displayed and perceived by the user with visible light of e.g. blue color. Thus, the user is provided with a visible representation of the infrared image in a superposition with the visible light image. The user may then recognize blood vessels positioned within the object field of the microscopy system 1.

Please replace the paragraph at page 28, line 33 to page 29, line 11 with the following amended paragraph:

However, the superposition of the visible light image with the image according to figure 5a would result in a reduction of the information which may be gained from the visible light image within portions 61 and 62 since these portions are indicated in blue color. To improve this situation the controller **[[**55**]]** 455 performs an analysis of the images received from camera **[[**41**]]** 441. The controller determines those coherent portions of the image showing intensities above a predetermined threshold. Using a suitable predetermined threshold a discrimination may be made between blood vessels and surrounding tissue. In the example shown in figure 5a the threshold will be adjusted such that the intensity in the portion 59 is below the threshold, and such that the intensities within portions 62 and 63 are above the threshold.

Please replace the paragraph at page 29, lines 13-29 with the following amended paragraph:

After identifying the coherent portions exceeding the threshold the controller **[[**55**]]** 455 will determine peripheral lines surrounding the coherent regions. Such peripheral lines are associated with a boundary between the coherent portions and the surrounding portions of the image. The controller **[[**55**]]** 455 supplies data representing the peripheral lines to the display **[[**65**]]** 465. The display generates an image of the peripheral lines, and such image is superimposed with the visible light image as schematically illustrated in figure 5b. In the image, only the peripheral lines 75 of portions 61 and 62 are shown in blue color. Thus, the user is provided with the information relating to the blood vessels which are located in an interior of the peripheral lines

75, and the user may still perceive the visible light image of the blood vessels as usual, and he may perform a surgical treatment of these blood vessels while observing the visible light image thereof.

Please replace the paragraph at page 29, line 31 to page 30, line 2 with the following amended paragraph:

A filter [[77]] 477 is disposed in a beam path of illumination system [[21]] 421. Filter [[77]] 477 is substantially not transmissive for wavelengths of the fluorescent emission of the fluorescent substance. The object will not be illuminated with fluorescent light such that the fluorescence of the substance is visible in the images detected by camera [[41]] 441 with a relatively high contrast and low background.

Please replace the paragraph at page 30, lines 4-18 with the following amended paragraph:

Additionally, a filter chopper [[79]] 479 is disposed in the beam path of the illumination system [[21]] 421. The filter chopper [[79]] 479 is rotatably driven by a motor [[89]] 481 which is controlled by controller [[55]] 455. The filter chopper comprises plural sectors which are subsequently transmissive and non-transmissive for light at wavelengths in a range between 750 nm and 820 nm. All sectors of the filter chopper [[79]] 479 are substantially transmissive for visible light. The excitation of the fluorescent substrate is modulated by rotating the filter chopper [[79]] 479. The intensities of the fluorescent images detected by camera [[41]] 441 are modulated in time, accordingly, and the controller [[55]] 455 may analyze the time dependency

of the fluorescent image by a method such as a lock-in method for further reducing noise and background in the fluorescent image.

Please replace the paragraph at page 30, lines 20-35 with the following amended paragraph:

An alternative embodiment of the illumination system illustrated above is indicated by dashed lines in figure 4. The alternative illumination system [[90]] 490 comprises a light source [[91]] 491 separate from light source [[23]] 423. Light source [[91]] 491 is provided for illuminating the object with visible light, whereas light source [[23]] 423 is only provided for generating the excitation light of the fluorescent substance. Thus, the illumination with visible light is independent from the illumination with excitation light, and a rotation of the chopper wheel [[79]] 479 may not modulate the illumination with visible light which modulation might disturb the user in observing the visible light image of the object. According to a further embodiment the light source [[23]] 423 is a laser light source which is rapidly switched on and off by the controller [[55]] 455 for modulating the excitation light. The light modulating chopper may be omitted in such embodiment.

Please replace the paragraph at page 31, lines 1-16 with the following amended paragraph:

The microscopy system further comprises an optical coherence tomography (OCT) apparatus 200 emitting an analyzing light beam 205 and directing the analyzing light beam 205 onto a beam scanner 260. Beam scanner 260 comprises a mirror for directing the analyzing light beam onto the object plane [[11]] 411 and to focus the analyzing light beam 205 onto the object plane.

The beam scanner 260 is controlled by controller **[[550]]** 455 for selecting the locations at which the analyzing light beam 205 is directed onto the object plane and to change those locations. The OCT apparatus 200 detects depth profile data of the object at the selected location and transmits the depth profile data to controller **[[55]]** 455. OCT apparatuses are well-known from the art. Examples are given in US 5,493,109 and US 5,795,295, the full disclosure of which is incorporated herein by reference.

Please replace the paragraph at page 31, line 18 to page 32, line 5 with the following amended paragraph:

A function of the OCT apparatus 200 is shortly illustrated with reference to figure 6 below. The apparatus 200 comprises a white light source 220 emitting radiation coupled into an optical fiber 230. A beam coupler 240 is provided for coupling the radiation into two optical fibers 250 and 270. One partial beam of fiber 270 is directed onto a reference mirror 290 through a lens 280. The partial beam of fiber 250 is collimated through a lens 251 as the analyzing light beam 205 **[[250]]** and directed to the beam scanner 260. The beam scanner 260 directs the analyzing light beam 205 **[[250]]** onto the object 255 to be inspected. Radiation of the analyzing light beam 205 received back from the object is supplied by beam scanner 260 in a reverse direction back to the OCT apparatus 200 and coupled into fiber 250. The radiation reflected back from mirror 290 is again coupled into fiber 270. The beam coupler 240 superimposes the radiation received from the object through fiber 250 and the radiation reflected back from mirror 290 through fiber 270 and couples the superimposed radiations into fiber 265. Fiber 265 supplies the superimposed

radiation to a photodetector 275. An output of the photodetector is demodulated by a demodulator 285 and transformed to computer readable data by an analog-digital-converter 295 and supplied to the controller **[[**55**]]** 455.

Please replace the paragraph at page 32, lines 23-30 with the following amended paragraph:

The controller **[[**255**]]** 455 controls the beam scanner 260 to direct the analyzing light beam 205 to those locations on the object at which depths profiles should be recorded. The controller **[[**55**]]** 455 limits the recording of depths profiles to only those portions or analyzing regions which have been previously determined by controller **[[**55**]]** 455 from the fluorescent light image which are indicated by reference numeral 62 and 63 in figure 5b.

Please replace the paragraph at page 32, line 32 to page 33, line 9 with the following amended paragraph:

The controller **[[**55**]]** 455 controls the beam scanner 260 such that depth profiles are recorded at a plurality of locations positioned on straight lines 213 within portions 62, 63, wherein the straight lines 213 are vertically arranged in the visible field 58 and disposed at a predetermined distance from each other. The depth profiles recorded along lines 211 are displayed on a display 207 of the microscopy system **[[**1**]]** 401. A keyboard 209 or other input means, such as a mouse, may be used for selecting the configuration of the straight lines 213 within the visible field 58, such as an orientation thereof and distance from each other. Further, one of portions 62, 63 may be selected such that depths profiles for the selected portion are not shown on display 207.

Please replace the paragraph at page 33, lines 27-30 with the following amended paragraph:

According to further embodiments the image generated by display apparatus 65 is coupled into partial beam [[16]] 416 rather than partial beam [[15]] 415. Alternatively corresponding representations may be coupled into both partial beams.